

**ABSTRACT**

The light source unit (16) comprises a single wavelength oscillation light source (160A), a light generating portion (160) which has an optical modulator (160C) converting and  
5 emitting light from the light source into a pulse light, a light amplifying portion (161) made up of an optical fiber group that each has a fiber amplifier to amplify the pulse light from the optical modulator, and a light amount controller (16C). The light amount controller (16C) performs a  
10 step-by-step light amount control by individually turning on/off the light output of each fiber making up the optical fiber group, and a light amount control of controlling at least either of the frequency or the peak power of the emitted pulse light of the optical modulator. Accordingly, in addition to  
15 the step-by-step light amount control, fine adjustment of the light amount in between the steps becomes possible due to the control of at least either the frequency or the peak power of the pulse light, and if the set light amount is within a predetermined range, the light amount can be made to coincide  
20 with the set light amount.